R642
Publication Only
Clinical ID: Infection in the immunocompromised host and transplant recipients

Oral and dialysis effluent protozoa colonisation in chronic kidney disease patients undergoing peritoneal dialysis

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Objectives: Peritoneal dialysis (PD) is a home-based and widely used therapy of renal replacement for patients with end-stage renal disease but peritonitis is still one of the most important causes of PD technique failure. In patients with persistent culture-negative results, colonization of unusual microorganisms, such as protozoa, should be considered. In this study, we aimed to evaluate the presence of protozoa in saliva and peritoneal dialysis (PD) effluent from PD patients. Also, prevalence of PD patients oral protozoa colonization was compared with a healthy population.

Methods: Clinical and demographic information was collected from 41 PD patients and 18 healthy controls (non-CKD family members of PD patients). A non-invasive intra-oral examination was performed in order to evaluate the decayed, missing and filled teeth (DMF), as well as oral hygiene indexes. Before oral examination, saliva samples were collected for pH and flow rate evaluation, as also protozoa diagnosis; furthermore, from PD patients, effluent samples were collected. Both samples were microscopically examined for protozoa evaluation by direct smear and specific staining techniques (Giemsa, Trichrome and Kinyoun).

Results: In five PD effluents (12.1%), different protozoa were observed namely, *Blastocystis hominis* in 2 PD patients, and *Entamoeba sp*, *Giardia sp* and *Endolimax nana* in the other 3 PD patients. One patient presented *Entamoeba* sp colonization in both saliva and PD effluent. All the protozoa-positive PD patients had low education level, different CDK etiologies and were not diabetics. Although similar information was obtained between genders, no correlations between protozoa colonization and environmental/ social conditions were found. Most of PD patients present bad oral hygiene and had a very high DMFT index, although the prevalence of decayed teeth was low in PD patients in comparison to controls ($p<0,05$). Regarding salivary flow rate, PD patients presented values below the normal range.

Conclusion: Asymptomatic protozoa colonization was found in 5 PD effluent (12.1%) and 1 saliva (2,4%), highlighting the need for a more systematic screening for protozoa in Portuguese PD population, as well as the possible link between oral colonizers and peritonitis agents, since there are no previous studies in this field in Portugal. The clinical impact of these sub-clinical infections should be further investigated.

LSS was supported by the fellowship SFRH/BD/84837/2012 from Fundação para a Ciência e Tecnologia/QREN – POPH . This work was supported by PEst-OE/SAU/UI0725/2011.